

mLearning for continuing medical education in Peru: a mid-term evaluation

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Abstract: Health care workers have indicated the need for an autonomous mobile solution that would enable access to the latest medical information for lifelong learning with low cost material and to exchange field cases with peers through social media.

We hereby present a mid-term evaluation of an innovative approach to healthcare workers' training with utilization of mobile technology as personal learning environment in the field of HIV/AIDS care in Peru.

Introduction

Many developing countries are moving towards the use of distance learning programs, avoiding peripheral health stations being left unmanned, because of health care workers studying out of stations, for short or long training programs: mobile technology offers a unique possibility to reach these workers at the point of care and even out in the field [1-3].

In order to facilitate physicians involved in HIV/AIDS care in Peru to access the state-of-the-art in HIV treatment and care the Institute of Tropical Medicine Alexander von Humboldt in Lima (IMTAvH) and the Institute of Tropical Medicine (ITM) in Antwerp set up in 2008 an educational mobile platform allowing access to the latest medical information for continuing medical education (CME).

In the conception of this training program we developed a set of learning scenarios (hereinafter called 'clinical module') simulating interactive clinical cases which are adapted to mobile devices and sent to physicians working in different HIV clinical stations in Peru (Figure 1).

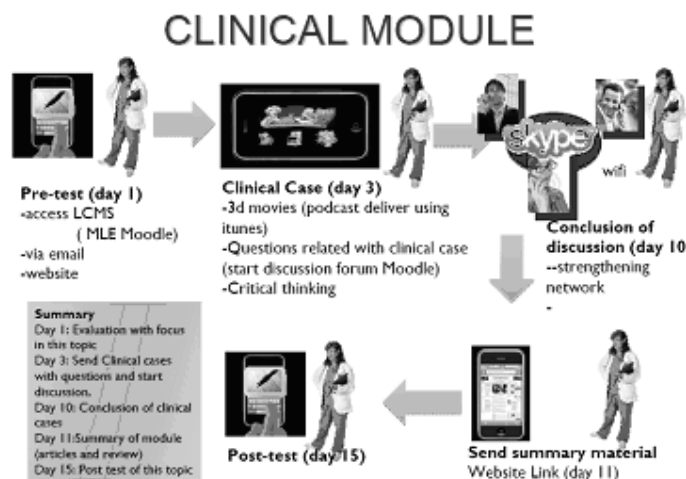


Figure 1. Flow of each CME module

Methods

Program description

Out of 24 Peruvian Department Capitals, 20 were involved in the previous years with an IMTAvH in a distance learning project, which started in 2004 having as aim the scaling up access to antiretroviral treatment in Peruvian peripheral regions.

All those facilities, where almost 70% of the total HIV-patients can get free treatment, were involved in this mLearning pilot project, which has taken place during the whole year 2009. The health centers in the Department Capitals are run by medical doctors and staffed by 5-10 health care workers as social workers, counselors, and data clerks.

Individual smartphones (ten Nokia N95 and ten iPhone) (Figure 2) equipped with a portable solar charger were used by twenty physicians based in these 20 urban and peripheral Peruvian HIV clinics.



Figure2. Smartphones: Nokia N95 and iPhone

The didactic material consisted in 3D animation on a specific topic. Critical reading, module revision and suggested reading were distributed along the timeline of the clinical module discussion. Learning outcomes of the acquired knowledge were tested through web-based multiple choice questions issued at beginning and end of each module (Figure 3).

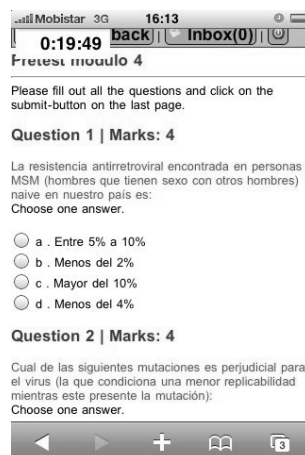


Figure 3. Example of post-test

A functional stable platform (MLE Moodle) was offered to support the learning events, tracking students' progresses over time. The platform also functioned as a forum for participants for peer-to-peer learning within a network of experts to assure content quality.

Evaluation

A mid-term evaluation was performed in December 2009 and consisted of users' satisfaction surveys, through a standardized anonymous questionnaire, focus group discussion and informal feedback with the help desk.

The users' satisfaction surveys sought to gain feedback on quality of the tutorials, usefulness of the information, applicability to the daily context of HIV treatment and care; the focus group discussion sought to identify general barriers to the program adherence; and informal feedback from the 2 responsible of the help desk gave information about the technical difficulties encountered in implementing the program.

Out of 20 participants, 18 returned the questionnaire; the medium one of age of the participants is of 48,5 years (range, 34 - 55 years), with a median of 6 years experience in treating HIV patients. The previous knowledge of the participants in the use of the different applications is shown in Figure 4.

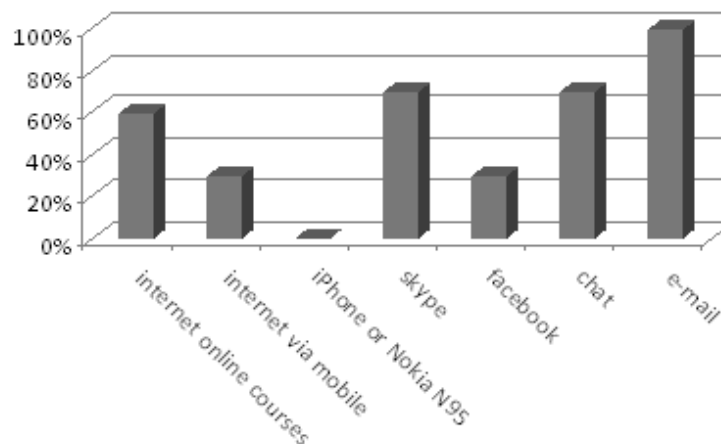


Figure 4. Participants' previous experience

Results

The educational strategy of mLearning has been considered overall positively by the participants. The advantages indicated by the participants are many, being the most important portability of the equipment and easy access to the educational content at own space and time. The topics covered by the program have been graded as pertinent to the daily clinical practice and very well thought.

The overall satisfaction of using iPhone or Nokia N95, expressed by the participants was generally greater for iPhone: access to Skype and Facebook has been more complicated for the Nokia N95 users (Figure 5). The main problems indicated by the Nokia N95 users were: screen size of the equipment, the keyboard and the quality of the images.

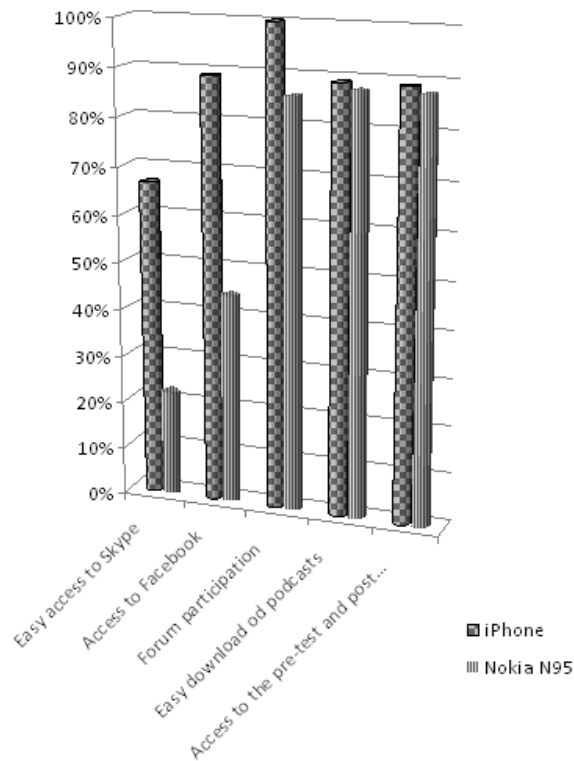


Figure 5. Use of applications according to mobile device

The most important difficulties emerged during the technical evaluation with the two help desks were the short time frame for the implementation of the project; the lack of participants' basic data at beginning of the project (existing "gmail" accounts, dilemma of multiple passwords, ...); the lack of direct communication with the participants; the profile of some of those already busy with their daily schedule; the long time the phones have been kept stored before to be distributed (which could have been used for the participants to familiarize with the tools); the need of a stronger action plan and the difficulty in using some of the software/tool to generate the tutorials.

Conclusions

With mobile devices learning environment is enhanced and ability to share knowledge through online discussion is strengthened through social media or directly on phone line [4-6]. Educational modules available on mobile computing give flexibility to the health care workers who can carry content anywhere [7].

These preliminary results show that the delivery of up-to-date modules on comprehensive treatment and care of people living with HIV/AIDS can be contextualized and customized to different devices, and adapted to small screen size, with production of standardized knowledge, applicable to multiple operating systems.

Acknowledgment

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